

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.-24. (cancelled).

(~~25.~~ (new) A method of identifying a compound that modifies activity of an active potassium channel protein comprising:

a) providing a cell expressing a potassium channel protein, said potassium channel protein being encoded by a first polynucleotide molecule comprising nucleotides 6 through 3257 of SEQ ID NO:1 or a second polynucleotide molecule that is degenerate with respect to said first polynucleotide molecule,

b) activating said potassium channel protein,

c) treating said cell with a test compound, and

d) detecting a change in activity of said potassium channel protein, thereby identifying a compound that modifies activity of an active potassium channel protein.

~~26.~~ (new) A method of identifying a compound that modifies activity of an active potassium channel protein comprising:

a) providing a cell expressing a potassium channel protein, said potassium channel protein being encoded by a polynucleotide molecule, the complement of which hybridizes to nucleotides 6 through 3257 of SEQ ID NO:1 under stringent conditions,

b) activating said potassium channel protein,

c) treating said cell with a test compound, and

d) detecting a change in activity of said potassium channel protein, thereby identifying a compound that modifies activity of an active potassium channel protein.

3 ~~27~~. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹25, wherein said potassium channel protein being encoded by a polynucleotide molecule is encoded by nucleotides 6 through 3257 of SEQ ID NO:1.

4 ~~28~~. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹25 or ²26, wherein said test compound is a member selected from the group consisting of a peptide, a chemical compound, a culture supernatant of a microorganism, a component of a plant, and a component of a marine organism.

5 ~~29~~. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹25 or ²26, wherein the step of activating said potassium channel protein comprises depolarizing said cell by a whole-cell voltage-clamp technique.

6 ~~30~~. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹25 or ²26, wherein the step of activating said potassium channel protein comprises depolarizing said cell by culturing said cell in a potassium solution.

7 ~~31~~. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹25 or ²26, wherein the step of detecting a change in activity of said potassium channel protein comprises measuring a change in outward current of said cell.

8 32. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹2²~~5~~ or ~~2~~⁶, wherein the step of detecting a change in activity of said potassium channel protein comprises measuring a change in ion release from said cell.

9 33. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹2²~~5~~ or ~~2~~⁶, wherein the step of detecting a change in activity of said potassium channel protein comprises measuring a change in membrane potential of said cell.

10 34. (new) The method of identifying a compound that modifies activity of an active potassium channel protein according to claim ¹2²~~5~~ or ~~2~~⁶, wherein the step of detecting a change in activity of said potassium channel protein comprises measuring a change in intracellular potassium levels of said cell.

Applicants respectfully request entry of the drawings.

II. Rejection Under 35 U.S.C. §112

A. At paragraph 5a of the Office Action, claims 10, 15 and 20 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

The Examiner states that the term "index of modification" is vague and indefinite as it is not defined in the specification, and it is unclear how an index of modification of a potassium channel protein may be affected in response to a physiological characteristic of the potassium channel.

Applicants have cancelled claims 10, 15 and 20, and replaced them with new claims 25, 26 and 27 (corresponding to claims 20, 10, and 15, respectively). Since new claims 25, 26, and 27 do not use the term "index of modification," Applicants assert that the new claims are not indefinite and respectfully request that this rejection be withdrawn.

B. At paragraph 5b of the Office Action, claims 10, 15 and 20 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

The Examiner states that the cited claims omit essential steps, and specifically that there is no correlation between the modification and measuring the index. The Examiner also states that it is unclear what index is measured and how this index is measured, and unclear as to a base-level activity.

In response, Applicants introduce new claims 25-34 wherein a step of "measuring the index" is not recited, and the subject matter of the claims is more clearly recited. Moreover, in the new claims an indication of the status of the potassium channel proteins is included as suggested by the Examiner during the telephonic interview on October 3, 2003. Furthermore, all steps required to practice the claimed method are set forth in the new claims.

In view of the new claim set, Applicants assert that the new claims are definite as written, and therefore respectfully request that this rejection be withdrawn.

C. At paragraph 6a of the Office Action, claim 10 is rejected under 35 U.S.C. §112, first paragraph, as lacking adequate written description.

The Examiner states that while the specification discloses polynucleotides encoding a potassium channel protein of SEQ ID NO:1 or 5, or a degenerate with respect to these polynucleotides, the specification does not disclose all of the polynucleotide sequences that hybridize to SEQ ID NO:1. The Examiner also contends that the specification does not define what is meant by the generic term "potassium channel protein," and the specification discloses potassium channel polypeptides encoded by SEQ ID NOS:1 and 5, and degenerate variants only. The Examiner further states that there is no description of the physiological characteristics that make a protein a potassium channel.

Applicants assert that new claim 26 satisfies the written description requirement. The "stringent conditions" recited in claim 26 are disclosed at page 10, lines 4-18, and claim 26 is written to make clear that the complement polynucleotide is a complement of a polynucleotide encoding a potassium channel protein. Accordingly, Applicants assert that claim 26 satisfies the written description requirement, and respectfully request that this rejection be withdrawn.

D. At paragraph 6b of the Office Action, claims 10, 15 and 20 are rejected under 35 U.S.C. §112, first paragraph, as being non-enabled.

The Examiner states that while the specification is enabling for measuring channel activity of potassium channels, it does not reasonably provide enablement for modifying the

activity of a potassium channel protein in response to a physiological characteristic of the potassium channel protein.

In response, Applicants note that new claims 25-34 are directed to identifying a modulator of an active potassium channel protein. Thus, the claims no longer recite a method for "modifying the activity of a potassium channel protein in response to a physiological characteristic of the potassium channel protein." Applicants further assert that a skilled artisan would be enabled to practice the full scope of the invention as set forth in the new claims.

In view of these comments, and the new claims, Applicants respectfully request reconsideration and withdrawal of this rejection.

III. Conclusion

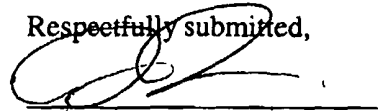
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. §1.111
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Q66067

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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